

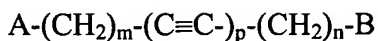
In the Claims

1. **(currently amended)** A method of imaging, measuring and displaying a 3-dimensional dose distribution of an energy field in a translucent 3-dimensional object comprising:

- (a) ~~forming a 3-dimensional object from a dispersion of a crystalline, radiochromic polyacetylene monomer having a conjugated structure uniformly distributed in a rigid or high density semi-solid matrix;~~ providing a translucent 3-dimensional object to obtain an image of said object in high optical resolution;
- (b) providing an image display receiver contained in a rigid or high density semi-solid matrix comprising a dispersion of a crystalline, radiochromic polyacetylene monomer having a conjugated structure uniformly distributed in said image display receiver along with said 3-dimensional object;
- (b) (c) applying an energy field to said 3-dimensional object such that the radiochromic polyacetylene monomer undergoes polymerization upon receipt of said energy thereby the optical properties of the object change in proportion to the dose of absorbed energy;
- (e) (d) heating said 3-dimensional object to a temperature sufficient to solubilize the crystalline radiochromic polyacetylene monomer in said rigid or high density semi-solid matrix, thereby rendering said object transparent to light;
- (d) (e) optically scanning the object at various positions and angles to provide a series of 2-dimensional representations of the object;
- (e) (f) detecting the light transmission through the object indicative of optical changes in the object;
- (f) (g) calibrating the optical change in the object corresponding to the dose of the absorbed energy;
- (g) (h) mapping the dose of the energy absorbed in the object; and
- (h) (i) reconstructing said 2-dimensional representations to provide a 3-dimensional image of the object in high optical resolution.

2. – 7. **(previously cancelled)**

8. **(original)** The method of claim 1 wherein said crystalline polyacetylene is a C₂ to C₁₀ radiochromic monomer having the formula:



wherein m and n each independently have a value of from 0 to 30; p has a value of 2 to 4; A and B each independently are R, OR₁, OH, COOR₂, CONR₃R₄ or (CH₂)_r-O-CO-NR₅R₆ or a metal salt of the acid or ester; and where R, R₁, R₂, R₃, R₄, R₅ and R₆ are each independently hydrogen or C₁ to C₁₂ alkyl or aryl and r has a value of from 1 to 4.

9. **(original)** The method of claim 1 wherein the metal salt of the crystalline polyacetylene is a lithium salt.